Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	WC Docket No. 07-38
Development of Nationwide Broadband	)	
Data to Evaluate Reasonable and Timely	)	FCC 08-89
Deployment of Advanced Services to All	)	
Americans, Improvement of Wireless	)	
Broadband Subscribership Data, and	)	
Development of Data on Interconnected	)	
Voice of Internet Protocol (VoIP)	)	
Subscribership	)	

REPLY COMMENTS OF THE PEOPLE OF THE STATE OF ILLINOIS ON FURTHER NOTICE OF PROPOSED RULEMAKING

THE PEOPLE OF THE STATE OF ILLINOIS

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I. Introduction

The People of the State of Illinois (the People) submit Reply Comments on three issues:

First, the arguments against the collection of telephone subscribership from local exchange carriers and interconnected VoIP providers on a Census Tract level should be rejected because they ignore the benefits of standardization, both in terms of what data are available and in terms of modifying carriers' systems to identify census tracts.

Second, the arguments against the collection of broadband pricing information present several strawman arguments such as the notion that prices should be treated as confidential information and that some carriers lack price information. Because price is the perhaps the most crucial piece of information that consumers and carriers need to make informed economic decisions, the Commission should reject any argument that suggests that price is either confidential or unavailable.

Third, the People will respond to comments both on state and federal mapping of broadband service and on the confidentiality of the geographic location of broadband connectivity. (Para. 39.) The experience of states, including Illinois, that have attempted broadband mapping demonstrates that Form 477 census tract information should be available to the states and their agents, and that this information should not be shielded from public dissemination except to the extent that individual consumer information may be revealed.

II. Reporting Telephone Subscribership Data By Census Tract Will Provide The Commission And The Public With Standardized Information and the Shift To Census Block Reporting Should Be Done For All Services.

In adopting census tract reporting for broadband service, the Commission

recognized the importance of detailed and accurate information about the telecommunications services available to the American people. WC 07-38, Report and Order and Further Notice of Rulemaking at, e.g., ¶ 9-12 (June 12, 2008); Order on Reconsideration, ¶ 4 . The same need for accurate information applies to voice services and to broadband services. Consistent reporting of available services and service penetration will benefit the public, and provide more meaningful data when policy decisions need to be made, particularly regarding issues that depend on the existence or extent of competition.

Some commenters argued that the Commission should delay adopting census tract reporting for voice service until the census tract broadband reporting has been implemented and assessed. *CTIA* at 5; *National Telecommunications Cooperative Association* at 3. Such a delay would be counter-productive. In many instances the same carriers provide both broadband and voice services (circuit based or VoIP), and matching only some of their records to census tracts, while excluding other records, would create internal inconsistency and potential confusion. Particularly when customers subscribe to both services, matching only some records could cause mismatching and errors in reporting that are avoided if all records are coded to census tracts at the same time.

Other commenters, particularly representatives of small local exchange carriers (LECs), argue that it is burdensome and costly to convert the addresses of their subscribers to census block. *Organization For The Promotion And Advancement Of Small Telecomm Companies and Western Telecommunications Alliance* at 3-4; *Texas Statewide Telephone Cooperatives* at 3. No information about how these smaller carriers

intend to track service addresses to census block is offered, however, so the Commission has no grounds on which to assess the degree of burden represented by including voice lines in the broadband reporting standard.

The Census Bureau offers tools that can convert addresses to census tracts. Its LandView product is available for a nominal charge of $129.00, and enables the user to identify census tract using addresses. http://www.census.gov/mp/www/cat/geography/006256.html The Census Bureau also provides a several page list of commercial vendors who offer products to convert addresses to census tract. See http://www.census.gov/cgi-bin/geo/vendors?A Several of these vendors provide bulk mapping and census track identification, again for very reasonable prices. One company offers 25,000 geocodes for $410. http://www.geocode.com/store/geocoding/index.cfm Another company offers 5,000 addresses for $119.00. http://serviceobjects.com/products/geocode_web_service.asp See also http://www.batchgeocode.com/ Small carriers, such as those represented by the Texas Statewide Telephone Cooperatives (that serve up to 5,000 lines), have several low cost options available to associate all of their lines to census tract.

The Commission should standardize Form 477 reporting so that voice service and broadband service are reported consistently by census tract. Opponents of reporting voice service by census tract have not adequately described an additional burden represented by converting both broadband and voice service simultaneously.

III. The Arguments Against Requiring Broadband Providers To Report Prices Are Based On Faulty Premises.

As several commenters have agreed, broadband price information is a key factor

in assessing the availability of broadband and in understanding the penetration or subscription rate in urban, rural, low-income, and other identifiable communities. E.g., *Comments of the National Association of Telecommunications Officers and Advisors in Response to Further Notice of Proposed Rulemaking* at 6-8; *American Library Association* at 3. For example, the price of satellite internet service, offered at relatively slow speeds at monthly prices ranging from $54.95 to $89.95 and requiring $249 in equipment costs (See Initial Comments of the People of the State of Illinois, Ex. 5), may affect the subscription rates of low-income rural consumers differently than broadband offered for $10.00 per month[1] or $19.95-$24.99 per month (*Id*., Ex. 1) with free or lower cost installation and equipment. This information is essential to understanding broadband availability and penetration, and may be relevant in deciding whether universal service price supports or discounts are appropriate to address the digital divide.

In anticipation of the arguments that pricing is too complex to report due to bundling and promotional discounts, (see AT&T Comments, 6-14), the People recommended that the Commission require reporting of the unbundled broadband price, excluding promotional offers. The People offered examples of advertised pricing to show what prices could be expected to be reported. People's Comments, Ex. 1-5. These simple reporting standards will eliminate the complexity associated with the many and often conflicting messages consumers receive from carriers, whose interest is often to sell as many services as possible.

The Form 477 report is not a marketing tool nor is it expected to be used by

[1] See In the Matter of Review of AT&T Inc. and Bell South Corp. Application for Consent to Transfer Control, WC 06-74, Merger Commitments (Dec. 28, 2006). As a condition of the AT&T and Bell South merger, under "Promoting Accessibility of Broadband Services," AT&T agreed to offer ADSL service at $10.00 per month for 30 months, starting within six months of the Merger Closing Date.

consumers to "shop" for service. Rather, it is a tool for policymakers. Having access to a defined range of prices is more meaningful than having information on *all* of the promotional or bundled prices promoted by carriers. Further, advertised prices can always be considered by policymakers in addition to the Form 477 reports.

Carriers also argue that even "basic" broadband may include different features and functions, making comparisons among carriers difficult. (AT&T Comments at 8). This misunderstands the purpose of the price reporting. Price reporting is needed to assess what consumers in a particular part of the country must pay for broadband service and how pricing affects both availability and penetration. If the lowest price includes certain features and functions, that is the price that consumers must pay to subscribe to the service, and whether the features and functions justify a higher or lower charge is not relevant to the inquiry. If carriers offer service at different prices and with different features and functions, that is what is available to consumers, irrespective of whether the features and functions are consistent across areas or carriers.

The existence of a "market" for broadband services, where there might be more than one broadband provider, does not lessen the need for price reporting. In fact, as the American Library Association pointed out in its Comments at page 3, markets can only function where there is a disclosure of information, and price is a key component of any purchasing decision. Arguments that pricing information might "distort the marketplace and impede free competition" should be rejected as based on a fundamentally incorrect view of the role of price and information in a truly competitive market. See *Comments of Frontier Communications on Sections IV(A) and (C)-(F)*at 4. Further, price reporting to the FCC, while reflecting basic prices at a point in time, should not affect purchasing any

more than having information generally available affects pricing. At best, arguments that reporting prices will hurt "competition" demonstrates that competition does not now operate in a meaningfully open market, to the detriment of consumers, and more price information is needed.

The Organization For The Promotion And Advancement Of Small Telecomm Companies and Western Telecom Alliance argue that if smaller carriers report price information, larger carriers will engage in predatory pricing to drive them out of business. *Organization For The Promotion And Advancement Of Small Telecomm Companies and Western Telecom Alliance* at 7. The Organization claims this is "an all too common occurrence." This claim must be considered critically. First, it can be expected that the price at which any carrier offers service can be discerned by interested parties, because clearly potential customers must know the price at which service is offered before they agree to subscribe. Second, competition presumes that carriers will compete on key terms of service such as price. If another carrier can offer service at a lower price, consumers benefit and competition based on price incents cost cutting and lower prices across the market, both key benefits of competition. Finally, if price competition is in fact "predatory pricing" and not simply competitive pricing, appropriate action should be taken under the antitrust laws. The Supreme Court has recognized the difference between competitive pricing and predatory pricing, and held that only below-cost prices should be seen as "predatory." The Court stated that it has:

> [rejected] the notion that above-cost prices that are below general market levels or the costs of a firm's competitors inflict injury to competition cognizable under the antitrust laws. See *Atlantic Richfield Co. v. USA Petroleum Co.*, 495 U.S. 328, 340, 110 S.Ct. 1884, 1892, 109 L.Ed.2d 333 (1990). "Low prices benefit consumers regardless of how those prices are set, and so long as they are above predatory levels, they do not threaten competition.... We have adhered to this

> principle regardless of the type of antitrust claim involved." *Ibid.* As a general rule, the exclusionary effect of prices above a relevant measure of cost either reflects the lower cost structure of the alleged predator, and so represents competition on the merits, or is beyond the practical ability of a judicial tribunal to control without courting intolerable risks of chilling legitimate price-cutting. See Areeda & Hovenkamp ¶¶ 714.2, 714.3. "To hold that the antitrust laws protect competitors from the loss of profits due to such price competition would, in effect, render illegal any decision by a firm to cut prices in order to increase market share. The antitrust laws require no such perverse result." *Cargill, supra*, 479 U.S., at 116, 107 S.Ct., at 492.

Brooke Group Ltd v. Brown and Williamson Tobacco Corp., 509 U.S. 209, 223 (1993). The Commission should reject the argument that prices should not be readily available to the public and to potential consumers.

IV. Broadband Data Should Be Publicly Available For Mapping So That States Can Accurately Determine and Monitor Broadband Deployment and Penetration Rates.

A. Broadband availability by census tract should be available to both public and private entities for mapping and other purposes.

Several carriers have argued that where they offer service and at what price, is "proprietary," or "competitively sensitive" information that should not be publicly available. E.g., *AT&T Comments* at 14; *Qwest Comments* at 5-6; *Independent Telephone and Telecom Alliance Comments* at 4-5; *CTIA* at 6-7; *Frontier Communications Comments on Sections IV9(A) and (C)-(F)* at 4. These comments should be rejected because the availability of a public service should not be treated as confidential. The carriers have not explained why the broadband market is different from other markets, nor specified the competitive harm they anticipate if granular broadband availability information becomes public.

In discussing how markets operate, basic economic textbooks emphasize that the premise "that markets work efficiently rests heavily on the assumption that **consumers and producers have full knowledge of product characteristics, available prices,** and so forth. The absence of full information can lead to transactions that are ultimately disadvantageous." Case and Fair, Principles of Microeconomics, Seventh Edition (paperback) at page 248 (bold added). This is such a basic and core part of elementary economics and effective markets that the Commission should find the unsupported statements that availability, speed and price data are somehow confidential and proprietary disingenuous and self-serving. Withholding information about availability, price, and service characteristics (e.g. broadband speed) from the public does not benefit consumers, promote real competition, or encourage widespread deployment of services, although it may protect carriers both from public scrutiny and from potential challengers, neither of which serve the public interest.

CTIA argues against public reporting and disclosure of its broadband coverage because it would "detail" for competitors "the location and extent of infrastructure in a given area" and would disclose "sensitive information about how a particular carrier may engineer and optimize its network to maximize coverage and service quality." *CTIA Comments* at 7. However, CTIA admits on pages 2-4 that wireless carriers routinely publicize coverage maps, and in fact, they are obligated to do so pursuant to the CTIA's Consumer Code. Available at: http://www.ctia.org/consumer_info/index.cfm/AID/10352 CTIA argues that "a carrier's coverage footprint" is one of the "most critical competitive factors," and that key piece of information has been demanded by consumers and is already readily available. Notwithstanding CTIA's broad claim, broadband coverage

maps are no more likely than wireless voice coverage maps to be used to reverse engineer a carrier's system or to "detail" the location and extent of infrastructure.[2] CTIA's argument to keep broadband coverage maps confidential should be rejected as inconsistent with its practices in regard to wireless telephone service.

AT&T argues that Form 477 information should be treated as confidential and asserts that the "pace and pattern of each provider's deployment" could be discerned from broadband availability data. It further suggests that "a detailed provider specific roadmap for its competitors to follow" will be available if broadband availability is publicly known. *AT&T Comments* at 14. The Commission should reject these claims as unsupported by what information will be subject to public disclosure, and as outweighed by the public interest in encouraging carriers to provide broadband services in areas the carriers have not to date served.

First, contemporary information is being collected, and existing deployment cannot be seen as representing "plans" for deployment. There has already been significant broadband deployment over the last ten years. In fact, AT&T has pledged to provide broadband to 100% of the residential living units in the AT&T/BellSouth in-region territory by December 31, 2007 as part of its Merger Commitments.[3] As a consequence, the extent of **new** deployment that would be at issue should be minimal for AT&T. Second, to the extent that there are gaps in coverage, the public interest requires that as many potential carriers as possible be encouraged to offer service. Although a

[2] CTIA also suggests that "cell sites, switches and other network elements" should not be disclosed. This is a red herring as the disclosure of this information has not been proposed.

[3] AT&T committed to providing 85% of residential services by wireline service and the remainder by alternative technologies. In the Matter of Review of AT&T Inc. and Bell South Corp., Application for Consent to Transfer Control, WC 06-74, Merger Commitments (Dec. 28, 2006).

carrier's failure to provide service in a given area may be considered part of its deployment plan, it is not in the public interest to provide any public protection to a strategy that deprives portions of the country of service or offers service but only at excessive prices.

B. Claims Of Confidentiality And Lack Of Information Have Stifled State Efforts To Study Broadband Availability And Penetration Rates and Should Not Be Accepted By The Commission.

Some commenters assert that voluntary, public-private partnerships should be relied upon to monitor and analyze broadband trends. *Comments of Verizon and Verizon Wireless on FNPR Concerning Broadband Mapping* at 9. However, the experience in Illinois, where broadband mapping efforts have suffered from inadequate cooperation and data from carriers, is consistent with the experiences described in the *Further Comments of Consumers Union, Consumer Federation of America, Free Press and Public Knowledge* (p. 3, 9-12) and the *Joint Comments of the Maine PUC and the Connect Maine Authority*, that maps available through state efforts have proved inadequate. Granular data must be collected on a federal level, and shared with the states, their designees, and with the public if states are going to produce accurate and comprehensive mapping and analysis.

The Lieutenant Governor of Illinois and the Illinois Department of Commerce and Economic Opportunity provided funds to Illinois State University to study and map broadband deployment, penetration rates, and prices in Illinois. A copy of the report dated April, 2008 is attached to these Reply Comments. The study identified four analytical goals, but there was inadequate information to meet any of those goals. *Id*. at 2-3. The number of providers and the prices were obtained, but "no detail on which

providers serve specific areas is being released so as to ensure confidentiality of survey respondents." *Id*. at 2. Due to lack of information and a carrier survey response rate of only 15.2%, the report lacked sufficient information on penetration rates and on the demographic characteristics of unserved areas, and was unable to predict community characteristics that affect broadband availability or penetration rates. *Id*. at 2-4. Discussing the data problems, the study related:

> [W]e learned that certain companies would not, in fact, be willing to provide the specific kinds of information we were seeking to obtain to complete each of the four objectives of the study described above. Because the companies in question account for a substantial share of the broadband service customers in Illinois, we then entered into negotiations with the individual companies in question in an effort to obtain at least some amount of usable information. The results of these efforts are described in Section III of this report. We had to deal with these same issues in Year 2 of the study.

Id. at 5. The authors of the study were unable to obtain reliable and complete information, making the study of limited value.

The results of the study clearly demonstrate the lack of information needed to reach any definitive conclusions. For example, the study concluded that between 22.94% and 53.56% of the zip codes in Illinois had no broadband provider, and that between 3.49% and 17.75% of the population lacked service. *Id*. at 9. These ranges are so large that they cannot support meaningful analysis or action.

The Illinois experience supports the conclusion that states and private parties need access to the census tract data that the Commission will be collecting from carriers. States are on the front lines of the digital divide, and are in the best position to use the broadband data collected on Form 477 to develop policies to promote broadband availability and use. The arguments of carriers that this information should be kept from the public, or destroyed after Commission use, would deny the states meaningful

information and thwart the federal goal to promote advanced services throughout the country.

Carriers offer broadband service to the public as part of their business plan, but the public has a further interest in the widest availability of that service due to its economic, social, and educational value. The Commission should subordinate carriers' concern -- that another carrier may enter the market to serve areas that are unserved or underserved -- to the federal and public interest that advanced telecommunications services be deployed to "all Americans." 47 U.S.C. 157 note.

V. Conclusion

The People of the State of Illinois support the Commission's initiative to improve its collection and analysis of broadband information, and request that the Commission adopt the recommendations contained herein and in the People's Initial Comments.

Respectfully submitted,

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Broadband access In Illinois

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About the Organizers

The Institute for Regulatory Policy Studies, residing in the Department of Economics at Illinois State University, was founded to foster education, communication, and research on regulatory policy issues of critical importance to consumers, regulators, utilities and other stakeholders. The Institute pursues these goals by sponsoring conferences and conferences, funding support for students, and conducting research. Further information about the Institute is provided on the Institute's web page.

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If your firm would like information about becoming a member of the Institute, please contact David Loomis at 309-438-7979 for more information.

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I. INTRODUCTION

Working in conjunction with Lieutenant Governor Patrick Quinn s Broadband Deployment Council, the Department of Commerce and Economic Opportunity provided funds to Illinois State University for the *Institute for Regulatory Policy Studies*[1] to conduct an in-depth study and mapping of broadband access in Illinois. The study was conducted between June 2006 and May 2008 and consisted of two iterations of a survey and corresponding data analysis. In the first iteration, referred to hereinafter as Year 1, we conducted two different surveys. The purpose of the first survey (referred to as Phase 1 in the previous report) was to more completely identify the population of potential providers of broadband service in Illinois. The purpose of the second survey was to determine broadband penetrations rates and the cost of broadband service to consumers. The results of the Year 1 study are summarized in *Broadband Access in Illinois* (Institute for Regulatory Policy Studies 2007). The second iteration, hereinafter referred to Year 2, was conducted between August 2007 and May 2008, to acquire updated information on access to broadband service in Illinois and determine the extent to which access to service had increased between the two iterations of the study. The objectives, data collection, analytical methods, and results of the Year 2 study are presented in this report.

A. Motivation for the study

The concept of the digital divide refers to the gap in access to, or skills needed to access, information resources in some communities compared to those having state-of-the-art (i.e., broadband) networks. The proportion of U.S. households with broadband connections increased to 19.9 percent in October 2003 (National Telecommunications and Information Administration 2004). Many national, state and local initiatives have been started to bridge the digital divide, including initiatives in the State of Illinois.

According to the Federal Communications Commission, in 2006, there were 51 providers of ADSL, 16 providers of Cable Modem service, 36 providers of fixed wireless and 10 providers of other broadband service for a total of 113 providers in Illinois. This figure ranked behind only Iowa (181) and Texas (133) in total number of providers. At the same time, Illinois ranked seventh in total broadband lines (2,611,672) behind California (9,395,285), New York (4,852,849), Florida (4,408,427), Texas (4,371,655), New Jersey (2,654,674), and Pennsylvania (2,646,898) (Federal Communications Commission 2007).

On October 11, 2005, the Illinois Commerce Commission (ICC) released the *Digital Divide Elimination Infrastructure Request for Grant Proposal* (DDEIF RFGP). One of the Commission s goals in administering this Fund is that through this grant process these

[1] The *Institute for Regulatory Policy Studies*, which was created in 1997, serves the electricity, natural gas and telecommunications industries and the regulatory community. The Institute s agenda includes education, communication and research on policy issues of interest to consumers, regulators and utilities in Illinois and throughout the nation. The Institute is housed in the Department of Economics at Illinois State University and is supported by Illinois State and member organizations through annual contributions. Dr. David Loomis currently serves as Executive Director of the Institute. More information about the Institute can be found at www.irps.ilstu.edu

underprovided areas will be able to obtain high-speed broadband access. (*Proposal*, p. 1) Yet little work has been done to identify where broadband access is already being provided in the State of Illinois and what standard should be used to determine if an area is underserved.

B. Objectives of the Study

Different definitions of what constitutes an underserved area with respect to broadband access are bound to exist. Some observers define an underserved area as one which has little or no access. Others might say that an area is underserved if it has less access to broadband service than a comparable community. Still others might point to a lack of affordably-priced broadband as being underserved since it may be unavailable from an economic standpoint to many households in the community.

The goal of this study was not to derive a single agreed-upon definition of what constitutes underserved but rather to provide data and analysis to equip policymakers to act on whatever definition they choose. To achieve this goal four objectives were identified:

1. *Determine the availability and pricing for various broadband options at the zip code level throughout the state of Illinois.* Tables and maps of the number of providers and information on average prices have been created but no detail on which providers serve specific areas is being released so as to ensure confidentiality of survey respondents.

2. *Determine the penetration rate of broadband at the zip code level throughout Illinois.* The penetration rate was to be calculated as the total number of broadband lines provided in a zip code divided by the number of households. A table and map of the penetration rate was to be created but no detail on number of lines by provider or by technology was to be released at the zip code level. This objective was highly dependent on the cooperation of broadband providers to report these data for this study. Unfortunately, we were, for a variety of reasons, unable to obtain sufficient data from various survey respondents to complete this aspect of the study as originally proposed.

3. *Use community characteristics to predict the number of providers in an area.* Another objective of the study was to relate the number of providers, by zip code, to the average price of broadband access, population density of that zip code, density of surrounding zip codes, average income level, type/size of company providing voice service, type/size of company providing cable service, and other factors. The goal was to identify areas that have fewer providers than predicted relative to the area s characteristics. The findings would have relevance for the competitiveness of various ISP markets at the local level. Unfortunately, we were, for a variety of reasons, unable to obtain sufficient data from various survey respondents to complete this aspect of the study as originally proposed.

4. *Use community characteristics to predict the penetration rate of broadband in an area.* A final objective of the study was to relate the penetration rate, by zip code, to the average price of broadband access, population density of that zip code, density of surrounding zip codes, average income level, type/size of company providing voice service, type/size of company providing cable service, and other factors. The goal was to identify areas that have less

penetration than predicted relative to the area s characteristics. The findings would provide useful input in the formulation future technology policy in Illinois. For instance, based on the importance of certain community characteristics in affecting (positively or negatively) the broadband penetration rate, a case for government support could be made (see Nuechterlein and Weiser (2005)). Unfortunately, we were, for a variety of reasons, unable to obtain sufficient data from various survey respondents to complete this aspect of the study as originally proposed.

C. Overview of Study Methods

To provide as comprehensive a picture as possible of broadband penetration rates and pricing in Illinois, it was important to ensure that we identified as many potential broadband service providers as possible. Trade associations, including the Illinois Telecommunications Association, the Cable Television and Communications Association of Illinois, the Illinois Energy Association, and Illinois Municipal Utilities Association were able to provide contact information on the majority of non-wireless service providers. However, to better ensure including providers that are not members of one of the associations listed above in the study, we began Year 1 of the study by surveying municipalities and townships to identify additional providers of broadband services. (A summary of the Year 1 phase 1 survey is presented in Appendix A.) Survey results indicated that municipalities and townships were, by and large, unable to identify potential wireless providers. Consequently, we conducted additional in-house research to identify wireless providers of broadband service in Illinois. Once the list of potential wired and wireless service providers was compiled we then administered a second survey of potential broadband service providers in Illinois. This second survey was conducted in both Year 1 and Year 2 of the study.

1. Survey design and administration

As noted above, the purpose of the first survey conducted in Year 1 (referred to as Phase 1 in the previous report) was to gather information from municipalities and townships on broadband service providers in Illinois and the primary contact person at each provider. This information was then combined with contact information obtained from various trade organizations to develop the list of potential broadband service providers in Illinois.[2] We then administered a second survey designed to collect a variety of information on broadband service in Illinois, including availability by zip code, penetration rates, upload and download speeds, and pricing.

2. Data analysis

As completed surveys were received, responses were entered into an Excel spreadsheet for analysis. The data analysis consisted primarily of summary statistics on availability of broadband service by zip code.

3. Preparation of Report

The final report was prepared once the data from the main survey had been collected and analyzed.

[2] The first survey (Phase 1) conducted in Year 1 was not repeated in Year 2.

D. Summary of Results

According to the results of the Year 1 study, the availability of broadband service varied widely by zip code, but in a somewhat predictable manner. By and large, there were more providers in zip codes with higher median income and population density and that tend to be more urban. Based on the data and other information we collected in Year 1, as many as 718 of the 1,348 zip codes in Illinois had access to only a single provider of broadband service in 2006. These zip codes collectively account for 15.4 percent of the state s total population. At the other extreme, people residing in 4 zip codes, accounting for 0.61 percent of the state s total population, had access to 6 or more broadband service providers in 2006. Finally, in 2006, prices for broadband service ranged between $15 and $50 per month, depending on the speed of the service and other factors (e.g., whether the broadband service is part of a bundle of services purchased from the provider).

According to the results of the survey of broadband service providers conducted in Year 2, the availability of broadband service continued to vary widely by zip code in 2007 in much the same manner as it did in 2006. Based on the data and other information we collected in Year 2, as many as 708 of the 1,348 zip codes in Illinois had no access to broadband service in 2007, while 484 had access to only a single provider of broadband service in 2007. These zip codes collectively account for 70.86 percent of the state s total population. At the other extreme, people residing in 3 zip codes, accounting for 0.33 percent of the state s total population, had access to 6 or more broadband service providers in 2007. Finally, in 2007, prices for broadband service ranged between $16 and $43 per month, depending on the speed of the service and other factors (e.g., whether the broadband service is part of a bundle of services purchased from the provider).[3]

[3] Much of the difference in results between the Year 1 and Year 2 studies is attributable to the fact that a single firm that had responded to the survey in Year 1 did not respond in Year 2. Because we had no information that allowed us to assume that such service had or had not changed, the absence of the respondent effectively shifted the results of the Year 2 study downward. Thus, for example, in Year 1 we generated a lower-bound estimate of 1,260 zip codes with access to one or two broadband service providers. In Year 2, we estimated 1,192 zip codes had access to 0 or 1 service providers. Adding in the one missing respondent would increase the lower-bound estimate of the number of zip codes in Year 2 with one or two service providers to 1,296.

II. DESCRIPTION OF SURVEY DESIGN AND ADMINISTRATION

A. Survey of Broadband Service Providers

1. Survey design

The purpose of the survey of broadband service providers conducted in Year 1 and Year 2 was to collect data on various aspects of the services they provide. The survey instrument requested a range of information, including

- the respondent s contact information,
- type of service provider,
- download and upload speeds,
- current high-speed internet customer data by zip code (including number of residential and business customers by internet speed range),
- pricing options, and
- plans for expanded service.

The State of Iowa has been collecting and analyzing information of the type sought in this study for the past several years, Most recently, the Iowa Utilities Board (IUB) issued a report entitled Assessing High-Speed Internet Access in the State of Iowa: Fifth Assessment (Iowa Utilities Board 2006). The report includes a copy of the survey instrument employed in the Iowa study. Because the survey instrument the IUB developed was designed to collect the same types of information of interest in this study, we contacted the IUB Project Manager regarding the possibility of using part, or all, of the IUB s survey instrument. We were able to obtain permission to use the survey instrument and modify it as necessary to fit our specific objectives and reflect terminology used in our study.[4] The survey cover letter, which came from the Lieutenant Governor s Office, was designed to emphasize the importance of the study to consumers and businesses in Illinois. Copies of the cover letter and survey instrument are reproduced in Appendix B.

2. Administration

In Year 1, when a pretest of the survey instrument was conducted to identify any potential problems with the design of the survey instrument, we learned that certain companies would not, in fact, be willing to provide the specific kinds of information we were seeking to obtain to complete each of the four objectives of the study described above. Because the companies in question account for a substantial share of broadband service customers in Illinois, we then entered into negotiations with the individual companies in question in an effort to obtain at least some amount of usable information. The results of these efforts are described in Section III of this report. We had to deal with these same issues in Year 2 of the study.

In Year 2, a package containing the survey instrument, a cover letter describing the purpose of the survey, and a self-addressed postage-paid return envelope, was mailed to 191 potential broadband service providers in Illinois on October 15, 2007. Approximately three weeks after the initial survey was mailed out, a postcard reminder emphasizing the importance of the study

[4] We wish to express our sincere thanks to Brenda Biddle of the IUB for providing us with an electronic version of the survey instrument employed in the IUB study.

and each potential broadband service provider s cooperation was sent to each of the firms included in the initial mailing that had not yet responded to the initial mailing. (A postcard reminder was sent to 186 providers on November 8, 2007. The number of potential respondents the reminder was sent to doesn t match the original number of surveys sent out due to returns of the initial survey. A copy of the postcard reminder is reproduced in Appendix C.)

As was the case in Year 1, respondents were given three options to respond to the survey: (1) return the completed questionnaire in the postage-paid envelope, (2) email a completed electronic version of the survey instrument to IRPS, or (3) complete an on-line version of the survey instrument.

III. SURVEY RESULTS

A. Response Rate

In Year 2, surveys were sent to 191 broadband service providers. Of these, 29 service providers responded to the survey. Of the completed surveys we received, 29 were usable, i.e., contained sufficient data to be useful in the study. This yielded a response rate of 15.2 percent.

For comparison purposes, surveys were sent to 182 broadband service providers in Year 1. Of the 56 service providers who responded, 55 provided usable information. This yielded a response rate of 30.8 percent.

IV. DATA ANALYSIS

In this section we report the results of the analysis of the data collected from various broadband service providers in Illinois. Before describing the results of the analysis, however, it is important to recognize two factors that have the potential to bias the results reported here. First, the data we collected are likely to understate the availability of broadband service in Illinois due to the relatively low response rate to the survey. This is especially true in those areas where there is only one provider and that provider did not respond to the survey (either because the provider chose not to respond or because the provider was not identified in the Year 1 study and therefore was not included in the population surveyed in Year 2).

The second source of bias has to do with the manner in which the data were collected by zip code. To be specific, if a service provider serves any part of a particular zip code, it is treated as if the entire zip code is served by that provider. This assumption was necessitated by the considerable increase in information we would have had to collect in order to more accurately determine the actual number of households in a zip code potentially served by a particular provider. It was determined that attempting to collect this additional information would have had a serious adverse effect on the response rate to the survey. The result is that this assumption has the effect of overstating the availability of broadband service in specific zip codes, all else constant.

It is not possible to determine the net effect of the biases noted above on the penetration rate measured at the zip code level. Nonetheless, these biases must be kept in mind in the course of interpreting the results reported here.

A. Socio-demographic Characteristics at the Zip Code Level

Viewed from an economic perspective, the extent of the availability of broadband service in Illinois will depend on both demand and supply characteristics. Obviously, service will not be in use where it is not available. That being said, firms will only consider supplying broadband service in a specific area so long as demand is perceived to be sufficient to cover the cost of supplying such service. Among the various factors that influence demand, the price of broadband service, the number of consumers, and consumers incomes are especially important.

1. Number of Buyers

Figure IV.1 provides information on population density by zip code. The map clearly indicates the various standard metropolitan statistical areas (SMSAs) in the state, i.e., the areas of the state where population and, correspondingly, population density are greatest. Assuming a positive correlation among population, population density and number of potential buyers, all else constant, it would be reasonable to expect that broadband services would be most readily available in those areas with the greatest population density.

2. Income

Figure IV.2 provides information on median income levels by zip code. Once again, median income levels tend to be higher in the SMSAs. Basic theory tells us that as income increases, so does demand for various goods and services. Thus, all else constant, it would be reasonable to expect that broadband services would be most readily available in those areas with the highest median incomes.

3. Percent Urban

Figure IV.3 provides information on the urban/rural mix in the state. The information in this map is highly correlated with the information in Figure IV.1, i.e., as the percentage of the population considered urban in a zip code increases, so does the population density in that zip code. This in turn translates into a larger market for broadband services within a given zip code. As such, we would expect to see greater availability of broadband services in more urban areas.

B. Availability of Broadband Service at the Zip Code Level

As was noted in Section III, 29 of the 191 broadband service providers surveyed returned usable completed surveys. This yielded a response rate of 15.2 percent. In addition to sending out follow-up reminders to non respondents we worked with various organizations to increase the amount of usable information on the availability of broadband service in the state. Thus, for example, representatives of the Illinois Independent Telephone Association explained that, in the case of its members, broadband service is available to all customers of local telephone service. We used this information to supplement the data obtained from the completed surveys.

In addition, a number of providers that did not complete the survey instrument nonetheless provided information to us we were able to use to estimate availability of broadband service at the zip code level. We used all of the information we obtained to produce two different summaries of the availability of broadband service in Illinois.

1. Basic Survey Results

The first summary of the availability of broadband service in Illinois is what might be considered a lower-bound estimate as it is based strictly on the survey results and information provided by specific firms regarding the zip codes in which they provide broadband service. Figure IV.4 illustrates our lower-bound estimate of the availability of broadband service by zip code. This information is summarized in Table IV.1 as well. As the figure and table illustrate, the availability of broadband service in Illinois varies considerably at the five-digit zip code level. According to the information in the figure and table, of the 1,348 five-digit zip codes in Illinois, there are as many as 709 zip codes in which there are no broadband providers. 484 different zip codes have access to only one broadband provider at this time. At the other extreme, people living in only 1 zip code in Illinois have access to five broadband service providers.

Table IV.1: Number of Providers by Zip Code, Lower-Bound Estimate

Number of Providers	0	1	2	3	4	5	6 or more
Number of Zip Codes	709	484	104	43	7	1	0
Percent of Zip Codes	52.56%	35.93%	7.72%	3.19%	0.52%	0.07%	0.0%
Percent of Population	17.75%	53.11%	14.07%	12.7%	2.23%	0.13%	0.0%

2. Augmented Survey Results

The second summary is, for all intents, an upper-bound estimate of the availability of broadband service in Illinois. It was constructed by augmenting the information in the first summary with addition information that enabled us to estimate, in a crude fashion, additional availability of broadband service. This was accomplished by taking information certain providers furnished and then extrapolating the likely service territory of each provider based on that information. Figure IV.5 illustrates our upper-bound estimate of the availability of broadband service by zip code. This information is summarized in Table IV.2 as well. According to the information in the figure and table, of the 1,348 five-digit zip codes in Illinois, the number of different zip codes in which there were no broadband service providers in 2007 falls to 310. At the other extreme, the number of different zip codes in which people have access to five or more broadband service providers rises to 16.

Table IV.2: Number of Providers by Zip Code, Upper-Bound Estimate

Number of Providers	0	1	2	3	4	5	6 or more
Number of Zip Codes	310	394	442	125	61	13	3
Percent of Zip Codes	22.94%	29.25%	32.81%	9.28%	4.53%	0.97%	0.22%
Percent of Population	3.49%	12.79%	51.98%	14.19%	14.55%	2.67%	0.33%

3. Comparison of Lower- and Upper-bound Estimates of Availability of Broadband Service

Table IV.3 simply the combines the information in Tables IV.2 and IV.3 to give the reader a sense of the estimated range of the availability of broadband service in Illinois.

Table IV.3: Comparison of Lower and Upper-Bound Estimates of Number of Providers by Zip Code

Number of Providers	0	1	2	3	4	5	6 or more
Number of Zip Codes							
Lower-bound	709	484	104	43	7	1	0
Upper-bound	310	394	442	125	61	13	3
Percent of Zip Codes							
Lower-bound	52.56%	35.93%	7.72%	3.19%	0.52%	0.07%	0.0%
Upper-bound	22.94%	29.25%	32.81%	9.28%	4.53%	0.97%	0.22%
Percent of Population							
Lower-bound	17.75%	53.11%	14.07%	12.7%	2.23%	0.13%	0.0%
Upper-bound	3.49%	12.79%	51.98%	14.19%	14.55%	2.67%	0.33%

C. Pricing of Broadband Service in Illinois[5]

Many of the firms providing broadband service in Illinois are national in scope and therefore price their services on a national basis. Larger local telephone companies (e.g., AT&T, Verizon) charge differential pricing based on speed and on bundles of other services that the company offers. Lower speed DSL is available for $15.99 to $17.99 a month, although some restrictions apply. Higher speed DSL is available for $29.99 to $34.99 a month. Cable TV firms (e.g., Comcast, Mediacom) offer Cable Modem services that can be faster than DSL. Cable Modem prices are generally higher than entry level DSL with monthly prices ranging between $39.99 and $42.99 a month. Fixed Wireless firms tend to be smaller and their pricing varies widely.

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[5] The information in this section is not based on the survey responses but was gathered through publicly available sources.

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Kiiski, S. and M. Pohjola, "Cross-Country Diffusion of the Internet", *Information Economics and Policy*, 2002, 14, 297 310.

National Telecommunications and Information Administration, *A Nation Online: Entering the Broadband Age,* U.S. Department of Commerce. September 2004.

Nuechterlein, J.E. and P.J. Weiser, *Digital Crossroads: American Telecommunications Policy in the Internet Age*, MIT Press, 2005.

Figure IV.1 - Illinois Population Density by Zip Code

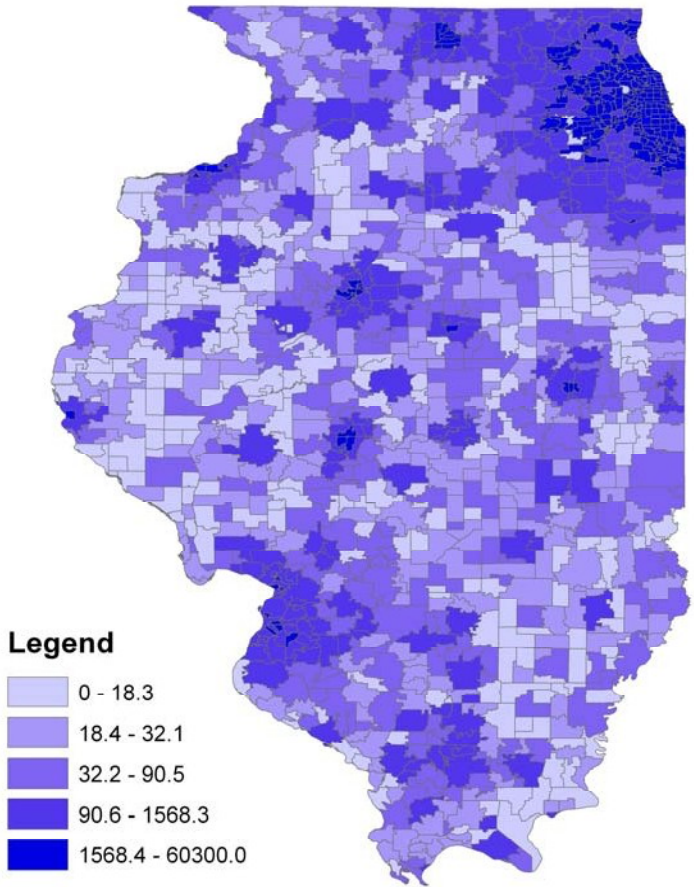

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Figure IV.2 - Median Income Levels by Zip Code

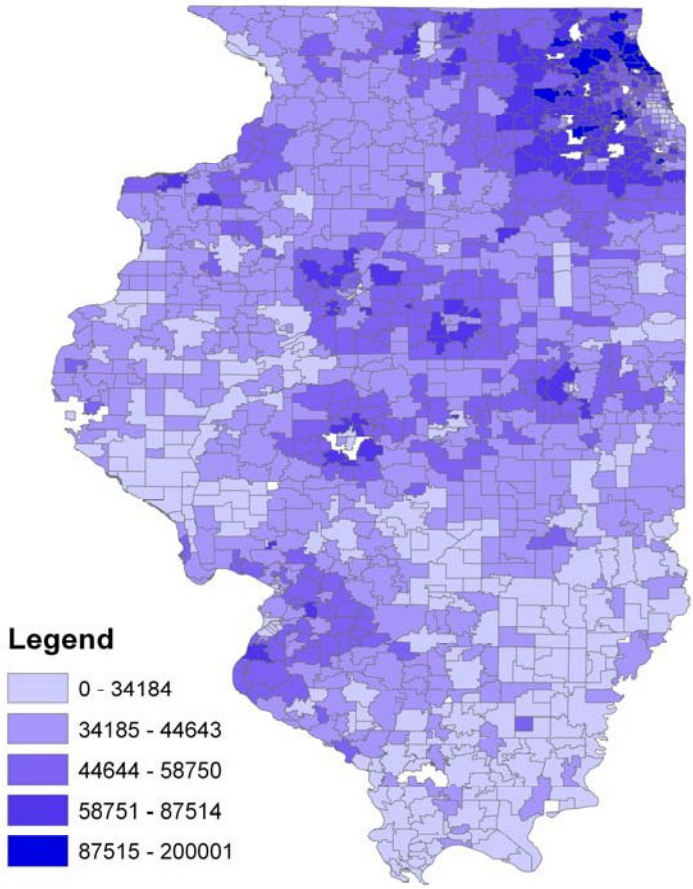

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Figure IV.3 - Percent Urban Population by Zip Code

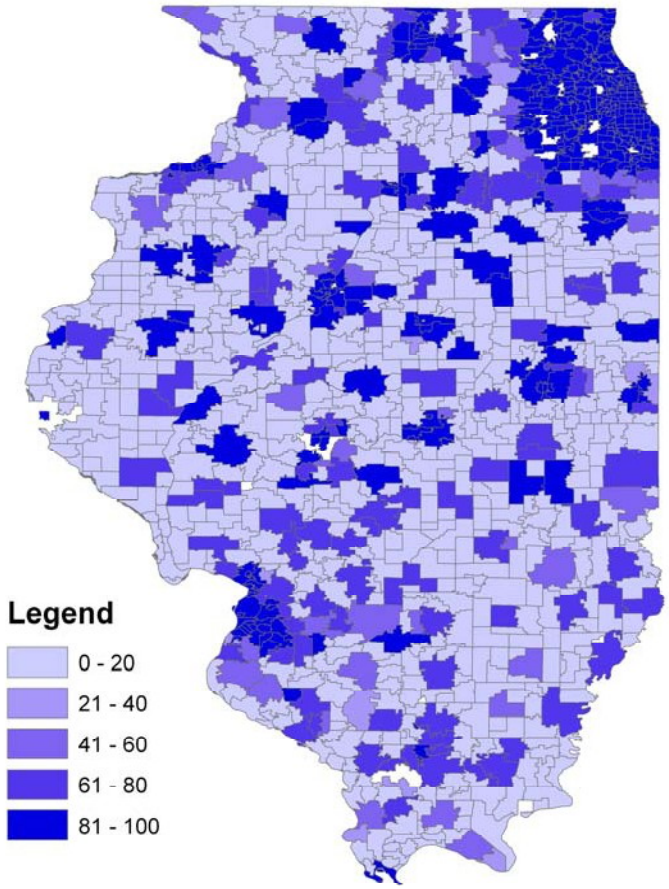

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Figure IV.4 Illinois Broadband Providers by Zip Code
Lower Bound Estimate

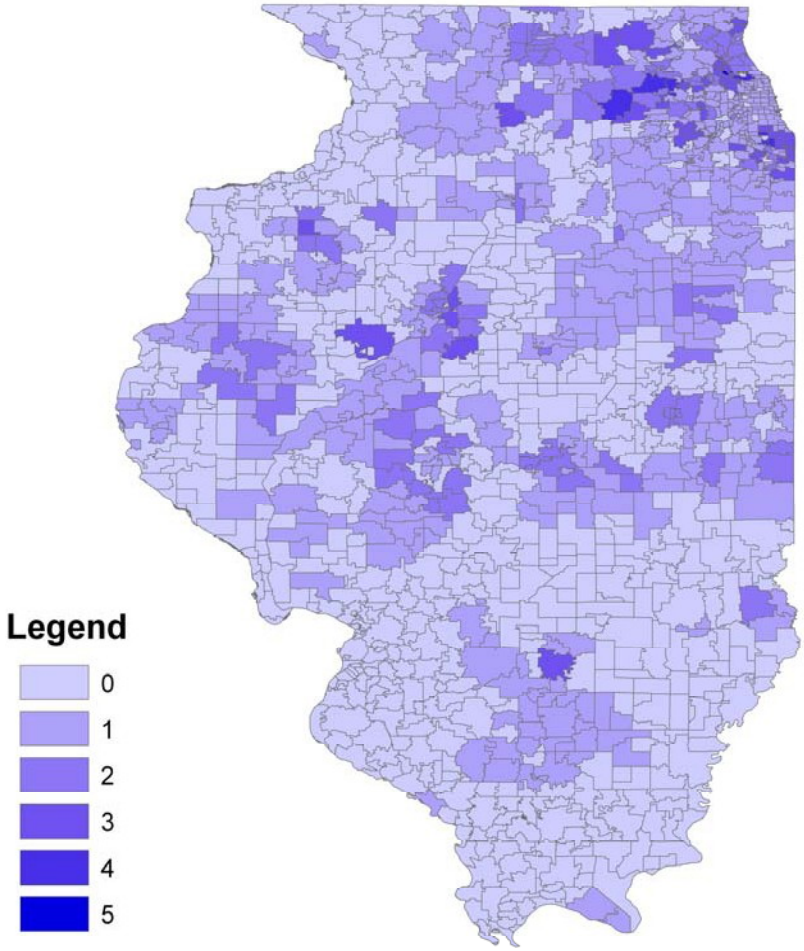

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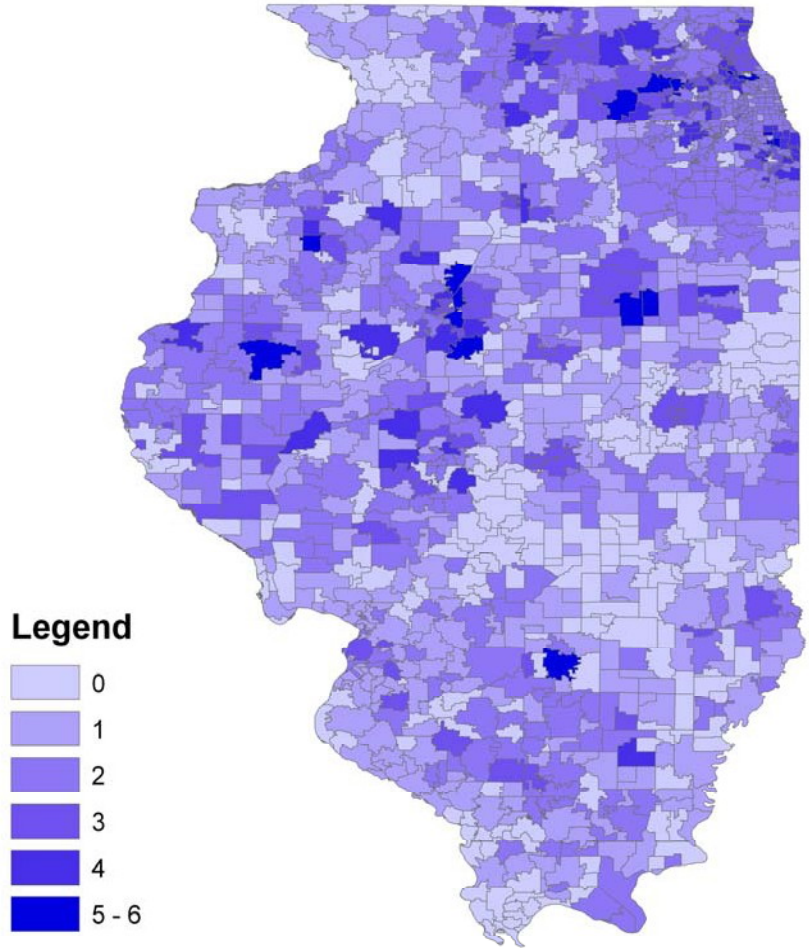
Figure IV.5 Illinois Broadband Providers by Zip Code
Upper Bound Estimate



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Appendix A

Year 1 Phase 1 Survey

Year 1 of the study involved the development and administration of two separate surveys. The first survey, referred to here as Phase I, was designed to assist in the identification of, to the extent possible, all of the potential providers of broadband services in Illinois and, more importantly, the appropriate contact person in each organization. This was done to better ensure a response to the survey of broadband service providers, referred to as Phase II in the remainder of the Year 1 report.

A. Phase 1: Identification of Broadband Service Providers and Contact Persons

1. Survey design

The purpose of Phase I was to help develop a more complete picture of internet service providers in Illinois who offer broadband service to their customers. The range of potential broadband service providers includes

- incumbent local exchange companies (providers of ADSL and Fiber),
- cable companies (providers of cable modems),
- Illinois wireless providers (providers of mobile wireless),
- electric companies (providers of Broadband over Power Lines),
- municipal electric companies (providers of Broadband over Power Lines), and
- companies registered with the ICC as telecommunications providers.

Most of the broadband service providers in Illinois belong to one or more of the following trade associations: the Illinois Telecommunications Association, the Cable Television and Communications Association of Illinois, the Illinois Energy Association, Illinois Municipal Utilities Association. Because certain broadband service providers might not belong to any of the trade associations listed above, we conducted a survey of Illinois municipalities and townships to develop a more complete picture of the range of potential service providers in the state. The instrument requested the following information:

- contact information for the municipality/township responding to the survey,
- all of the 5-digit zip codes included in the municipality/township,
- the name, address, and
- contact information for each broadband service provider (or potential provider) operating with the municipality/township s boundaries.

The survey cover letter, which came from the Lieutenant Governor s Office, was designed to emphasize the importance of the study to consumers and businesses in Illinois.

2. Administration

The initial mailing of the survey, which consisted of the survey instrument, a cover letter describing the purpose of the survey, and a self-addressed postage-paid return envelope, was mailed to 1,341 municipalities and townships in Illinois on June 12, 2006. The survey recipients were drawn from a mailing list compiled by the Illinois Department of Commerce and Economic Opportunity. Approximately two weeks later, a second copy of the cover letter

and survey instrument was sent to each of the municipalities/townships included in the initial mailing.

Respondents were given three options to respond to the survey: (1) return the completed questionnaire in the postage-paid envelope, (2) email a completed electronic version of the survey instrument to Broadband Access in Illinois, or (3) complete an on-line version of the survey instrument. Respondents who wished to respond electronically were given a web address where they could download a Word file containing the survey instrument and an email address where they could then send the Word file once the requested information had been entered. Respondents also had the choice of completing and submitting the survey on line.

3. Response Rate to Phase 1 Survey

Surveys were sent to 1,341 municipalities and townships in the Phase 1 survey. 387 municipalities/townships responded to the survey. Of that total, 312, or 80.6 percent, of the respondents provided their responses via U.S. mail. Another 74, or 19.1 percent, replied via the survey posted on the web site referred to above. Only one respondent replied via email. Of the completed surveys we received, 385 were usable, i.e., contained sufficient data to be useful in the Phase 2 survey. The remaining 2 surveys returned were unusable for different reasons and had to be discarded. This yielded a response rate of 28.7 percent.

Focusing on the usable surveys, 211 respondents identified at least one broadband service provider in their area. The number of known service providers ranged between 0 and 10. The remaining 101 respondents indicated no knowledge of any broadband service providers in their areas.

Copies of the cover letter and survey instrument used in Phase 1 of Year 1 can be found in *Broadband Access in Illinois* (Institute for Regulatory Policy Studies, 2007).

Appendix B

Year 2 Survey Cover Letter and Survey Instrument

STATE OF ILLINOIS
OFFICE OF THE LIEUTENANT GOVERNOR
JAMES R. THOMPSON CENTER, SUITE 15-200
Chicago, Illinois 60601

PAT QUINN
LIEUTENANT GOVERNOR

September xx, 2007

In October, 2006, as the Chairman of the Broadband Deployment Council, I requested that the Institute for Regulatory Policy Studies at Illinois State University conduct a survey of potential providers of broadband services in Illinois. This study was to determine the actual number of providers of broadband service and the penetration rate of broadband Internet service in the state at the zip code level. The results of that study were published in a report available at ~~www.illinoisconnect.org~~.

While the initial survey provided us with useful information, we have considerably more information to collect. This additional information will give us a better picture of the market for broadband service in Illinois.

I am writing to ask your help in a follow-up study of broadband access and adoption in Illinois. Please complete the enclosed survey and return it to the Institute for Regulatory Policy Studies. To ensure the success of this follow-up study it is critically important that every potential provider of broadband Internet service respond to the survey. Even if you completed a survey last year, we are asking you to complete one again, including any changes in the service you offer. If you did not respond last year, we are asking that you do so now. The results of this survey will be used to:

- Determine the number of providers and average prices of broadband Internet service in the state at the zip code level. To ensure confidentiality, no detail on which providers serve a specific area will be released.
- Determine the penetration rate of broadband Internet service in the state at the zip code level. No detail on number of lines by provider will be presented at any level; detail on number of lines by technology will only be reported at the state level.

We are distributing this survey to all entities we believe are capable of providing access to high-speed broadband Internet service in Illinois, including facilities-based local exchange carriers, cable providers, wireless, and satellite companies. The follow-up study will be completed April 30 of 2008. A downloadable copy of the final report will be available at www.illinoisconnect.org. Your completion of the enclosed survey is essential. Attach additional sheets if necessary.) We request that you complete the survey and return it by November 20, 2007 to:

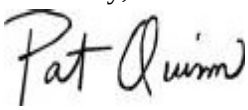
Dr. David Loomis
Institute for Regulatory Policy Studies
Campus Box 4200
Illinois State University
Normal, IL 61790-4200
Survey Mailbox: IRPS@ilstu.edu
Phone: 309-438-8625 Fax: 309-438-5228

A postage-paid return envelope is enclosed for your convenience. You can also complete the survey online at www.IRPS.ilstu.edu. The web-based version of the survey is in Word format. You can then submit the completed survey to the IRPS e-mailbox noted above.

While your participation in this survey is completely voluntary, your responses are very important in our efforts to improve access to broadband services in Illinois. We want to stress that your responses will be kept completely confidential. All information presented in the final report will be aggregated on an ***industry*** basis. Similar studies have been conducted in other states including North Carolina, Kentucky and Iowa with considerable success. The information generated has proven useful to all stakeholders and we believe Illinois stakeholders deserve similar benefits.

Thank you in advance for your assistance in this important study.

Sincerely,



Pat Quinn
Lieutenant Governor

Illinois Broadband High-Speed Internet Access Survey
As of June 1, 2006

Section 1 – Company Information

1. Contact Information:

Company Name:			
Company Address:	City:	State:	Zip Code:
Telephone #:	Fax #:		
Contact Person and Title:			
Contact E-Mail Address:			

2. What type of service provider is your company? (Please fill out a separate survey for each type of service you provide)

ILEC ☐ CLEC ☐ Cable ☐ Wireless ☐ Satellite ☐ Other ☐ Please explain other: _____

3. Does your company currently provide broadband Internet services (with download speeds greater than 200 Kbps) in Illinois?

Yes ☐

No ☐

3a. If Yes, please list the Internet speeds **(Download/Upload)** you offer (download greater than 200 kbps)**:**

► ► ► ►
► ► ► ►

Please go on to Sections 2 & 3.

3b. If No, does your company plan to offer broadband Internet service in Illinois within the next 12 months?

Yes ☐ Please complete **Section 3.**

No ☐ You are finished with the survey, Please submit and thank you for your time.

Section 2 – Current High-Speed Internet Customer Data by ZIP Code

4. Please use the worksheet format to provide information for **EACH ZIP CODE** served in Illinois. Additional sheets are necessary if you serve more than 20 ZIP codes.

4a. List all the ZIP codes your company currently serves	4b. Do You Currently Offer Broadband Internet Services to **Residential Customers** in this ZIP Code	4c. Do You Currently Offer Broadband Internet Services to **Business Customers** in this ZIP Code	4d. Total Number of Customers in this ZIP Code	4e. Number of Customers Currently Subscribing to Broadband Internet Service **Speeds listed below are download speeds** Please fill in number of Residential (Res) and Business (Bus) customers by Internet speed range								4f. Number of Customers that Currently Have Access to Your Broadband Internet Service in this ZIP Code
				200-512 Kbps		**513-999 Kbps**		**1-4.99 Mbps**		**Over 5 Mbps**		
				Res	Bus	Res	Bus	Res	Bus	Res	Bus	
99999	Yes	No	1000	200	10	125	25	0	0	0	0	675
	Y/N	Y/N										
	Y/N	Y/N										
	Y/N	Y/N										
	Y/N	Y/N										
	Y/N	Y/N										
	Y/N	Y/N										
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- Column 4a. – Please list the ZIP codes where you provide broadband Internet service.
- Column 4d. – This should be the total number of customers (both residential and business) for your primary service (i.e. telephone, cable television or wireless telephone service) in each ZIP code. For ILEC and CLEC service providers, please list the total number of access lines.
- Column 4e. – This should be the total number of your broadband Internet customers in each ZIP code (access lines for xDSL). Please give the number of residential and business customers in each Internet speed category, which are listed by download speeds.
- Column 4f. – Please list the number of customers (both residential and business) you could provide immediately with broadband Internet in each ZIP code.

Section 3 – Prospective Broadband Internet Communities

5. Please list any additional ZIP codes in which you plan to provide broadband Internet service within the next 12 months (by June 30, 2007).

List all Additional ZIP codes that will be Served by June 30, 2007	Month in which High-Speed Internet Service will be Available
	Pick a Month
	Pick a Month
	Pick a Month
	Pick a Month
	Pick a Month
	Pick a Month

Section 4 – Pricing Information

6. Does your company currently provide a stand-alone broadband Internet service?

Yes ☐ What is the price of that service? Please list all current broadband Internet options and corresponding prices in the table below.

No ☐ If you answered **NO**, you are finished with the survey.

Type of Service (Internet Speed, Bundled Services, etc.)	Recurring Rate Billed to the Customer per Month – Including any Rental Charges for Equipment (List Range if Price Varies by ZIP code)	Term of Contract – if applicable	Other Items – Include any Offers or Other Features as applicable	Installation Fee
Example – Internet 384 K (up and down)	$79.95	1 year contract	Free Modem	$25.00